REMARKS

Claims 1, 13, 18, 57, 61, 87, 88, and 112, are presently pending in the application. Claims 103, 130, and 149 are withdrawn from consideration as being directed to a non-elected invention, and Claims 2-12, 14-17, 19-56, 58-60, 62-86, 89-102, 104-111, 131-148, and 150-157, have been canceled. Reconsideration and allowance of all claims are respectfully requested in view of the following remarks.

Claims 1, 13, 18, 57, 61, and 87 were rejected under 35 U.S.C. §102(b) as being anticipated by Holmlin et al. Further, Claims 1, 87-88, and 112 were rejected under 35 U.S.C. §102(b) as being anticipated by Grier et al. (USP 6,055,106). Claims 13, 18, 57, and 61, were rejected under 35 U.S.C. §103, as being unpatentable over Grier et al. in view of Ulmer et al. For the following reasons the prior art rejections are respectfully traversed.

Claim Rejections

Claims 1, 13, 18, 57, 61, and 87 were rejected under 35 U.S.C. §102(b) as being anticipated by Holmlin et al. Further, Claims 1, 87-88, and 112 were rejected under 35 U.S.C. §102(b) as being anticipated by Grier et al. (USP 6,055,106). Claims 13, 18, 57, and 61, were rejected under 35 U.S.C. §103, as being unpatentable over Grier et al. in view of Ulmer (incorrectly identified by the Examiner in the Remarks, but included on Form 892 as USP 5,776,674). Our comments with respect to the prior art rejections follow.

The Applicants respectfully submit that Holmlin et al. do not teach or suggest a method of configuring and tracking an array of probes by generating at least two independently movable optical traps within a vessel; providing at least two probes within the vessel; selecting at least two of the probes for inclusion in an array of probes contained within the optical traps; trapping

each of the selected probes with a corresponding one of the optical traps to configure the array of probes contained within the optical traps; and, tracking the position of at least one of the trapped probes in the array by computerized monitoring of the position of the optical trap which contains it, as recited in amended Claim 1.

Rather, Holmlin et al. disclose using two optical trapping beams to transport each erythrocyte, and does not teach or suggest independently movable optical traps which can individually trap and move individual probes. Further, tracking of the probes in the arrays are performed by human observation in Holmlin et al., and computerized monitoring of the position of a trapped probe is not performed. Further, since in Holmlin et al, the array is permanently formed until disassembled by the addition of a solution of fetuin, tracking of any individual probe in an array is not possible, since movement of a trapped probe once it is part of an array, can not be performed.

Accordingly, Claim 1 is neither anticipated by, nor obvious over Holmlin et al., and the rejection of Claim 1 under 35 U.S.C. §102(b) should be withdrawn.

Further, the Applicants respectfully submit that Holmlin et al. do not teach or suggest a method of assaying biological material including generating at least two independently movable optical traps within a vessel; providing a fluid media in the vessel; providing at least two probes for biological materials within the fluid media; selecting at least two of the probes for inclusion in an array; trapping each of the selected probes with a corresponding one of the optical traps; introducing into the vessel at least one target comprised of a biological material; and, determining the reaction or lack thereof, of each of the trapped probes with each of the targets;

wherein the probes which react with the targets are segregated from the remaining probes, as recited in amended Claim 57.

As noted above, Holmlin et al do not teach or suggest generating independently movable optical traps which can individually trap probes. Further, Holmlin et al. do not teach or suggest determining the reaction or lack thereof of a probe with a target, wherein the probes which react with the targets are segregated from the remaining probes. Holmlin et al. are silent with respect to this feature, and only disclose building permanent arrays of cells connected together with microspheres.

Accordingly, Claim 57 is neither anticipated by, nor obvious over Holmlin et al., and the rejection of Claim 57 under 35 U.S.C. §102(b) should be withdrawn.

Still further, the Applicants respectfully submit that Holmlin et al. do not teach or suggest a mode of configuring an array of probes including generating at least two independently movable optical traps within a vessel; providing at least two probes within the vessel; and, configuring an array of at least two probes by selecting each probe with a corresponding one of the optical traps; wherein the array is modifiable by removing or adding at least one probe in said array, and tracking the position of at least one of the trapped probes in the array by computerized monitoring of the position of the optical trap which contains it as recited in amended Claim 87.

As stated above, Holmlin et al do not teach or suggest generating independently movable optical traps which can individually trap probes, or track them using computerized monitoring. Further, Holmlin et al. do not teach or suggest configuring a modifiable array where at least one probe can be removed or added to the array. Holmlin et al. are silent with respect to this feature,

and in contrast, teach an array which is permanently formed until disassembled by the addition of a solution of fetuin. Thus, the array of cells in Holmlin et al. is not modifiable.

Accordingly, Claim 87 is neither anticipated by, nor obvious over Holmlin et al., and the rejection of Claim 87 under 35 U.S.C. §102(b) should be withdrawn.

Further, since Claims 13, 18, and 112, depend from Claim 1, and Claim 61 depends from Claim 57, they are also patentably distinguishable over Holmlin et al. for the reasons cited above with respect to Claims 1 and 57.

With respect to the rejection of Claims 1, 87, 88, and 112 over Grier et al., the Applicants respectfully submit that Grier et al. do not teach or suggest a method of configuring and tracking an array of probes by tracking the position of at least one of the trapped probes in the array by computerized monitoring of the position of the optical trap which contains it, as recited in amended Claim 1, and as substantially recited in amended Claims 87 and 88.

Rather, Grier et al. are silent with respect to this feature, and only disclose viewing of the probes by human observation. Further, since the individual probes in the array are not movable without moving the array itself (i.e., the tweezer array is translatable only as a unit by various means - see col. 5, lines 38-39, and 45-49), computerized tracking of any individual probe in the array is not possible.

Accordingly, Claims 1, 87, and 88 are neither anticipated by, nor obvious over Grier et al., and the rejection of Claims 1, 87, and 88, under 35 U.S.C. §102(b) should be withdrawn.

Further, since Claim 112 depends from Claim 1, it is also patentably distinguishable over Grier et al. for the reasons cited above with respect to Claim 1.

With respect to the rejection of Claims 13 and 18, the addition of Ulmer does not make up for the deficiencies in Grier et al.

With respect to the rejection of Claim 57, the Applicants respectfully submit that neither Grier et al. nor Ulmer, individually, or in combination, teaches or suggests a method of assaying biological material including generating at least two independently movable optical traps within a vessel; providing a fluid media in the vessel; providing at least two probes for biological materials within the fluid media; selecting at least two of the probes for inclusion in an array; trapping each of the selected probes with a corresponding one of the optical traps; introducing into the vessel at least one target comprised of a biological material; and, determining the reaction or lack thereof, of each of the trapped probes with each of the targets; wherein the probes which react with the targets are segregated from the remaining probes, as recited in amended Claim 57.

Rather, in Grier et al. and Ulmer, the trapping is performed on a 2-dimensional surface (i.e., sample stage or substrate), and not in a 3-dimensional structure such as a vessel containing fluid media. Further, Ulmer only teaches moving a trapped particle past a sequence of reagents in the thin liquid film on the sample stage, and not segregating trapped particles which react with targets introduced into the vessel, from those particles in the vessel that did not react to the targets.

Further, since Grier et al. are silent with respect to reacting the particles with targets introduced onto the sample stage, and segregating those particles that react with the targets (reagents) from those that do not, there is no motivation to combine Grier et al. with Ulmer to achieve the claims features of the present invention.

Further, even if combined, the claimed features would not be taught. A combination of Grier et al. and Ulmer would only suggest or teach attaching a reagent to the particles in Grier et al., and introducing reagents onto the sample stage of Grier et al. for possible reaction by a trapped particle to the reagent. The method steps of the present invention, including introducing the target into a vessel of fluid media, and segregating reacting particles from unreacting ones, would not be taught or suggested by the Grier et al./Ulmer combination of features.

Accordingly, Claim 57 is not obvious over either the individual or the combination of the Grier et al. and Ulmer references, and the rejection of Claim 57 under 35 U.S.C. §103 should be withdrawn.

Further, since Claim 61 depends from Claim 57, it is also patentably distinguishable over either the individual or the combination of Grier et al. and Ulmer for the reasons cited above with respect to Claim 57.

Accordingly, the claims should be in form for allowance, and such action is hereby solicited.

If the Examiner believes that there is any issue which could be resolved by a telephone or personal interview, the Examiner is respectfully requested to contact either of the undersigned attorneys at the telephone number listed below.

Applicants hereby petition for the Commissioner to charge any additional fees or any underpayment of fees which may be required for this Preliminary Amendment, and which may be required to maintain the pendency of this case at any time during prosecution, or to credit any overpayment to Deposit Account No. 50-0951.

Respectfully submitted,

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